FIG. 1

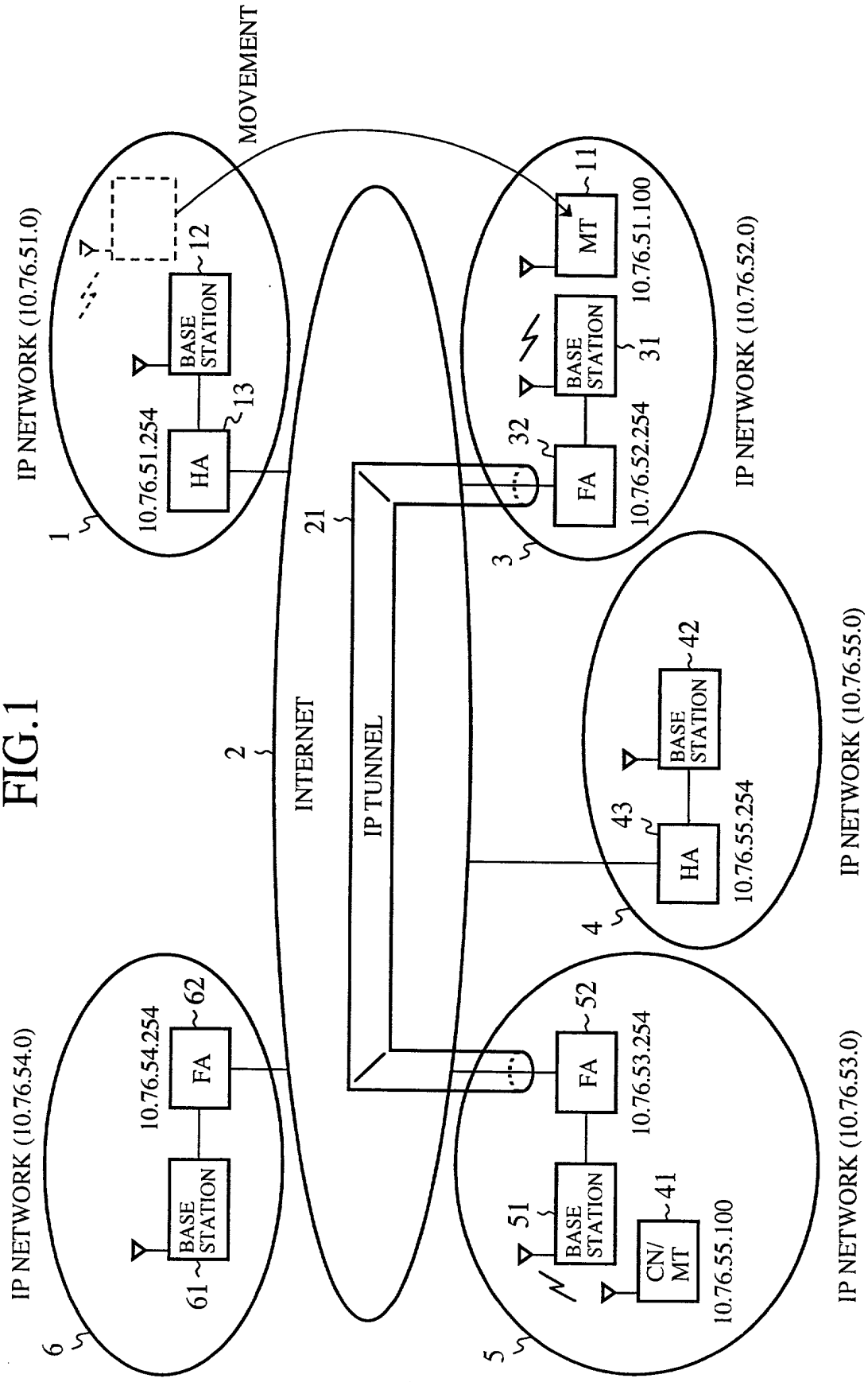
IP NETWORK (10.76.51.0)
MOVEMENT
BASE STATION
12
13
HA
10.76.51.254
1
2
INTERNET
21
IP TUNNEL
IP NETWORK (10.76.52.0)
MT
11
10.76.51.100
BASE STATION
31
32
FA
10.76.52.254
3
IP NETWORK (10.76.55.0)
BASE STATION
42
43
HA
10.76.55.254
4
IP NETWORK (10.76.53.0)
51
BASE STATION
CN/ MT
41
10.76.55.100
FA
52
10.76.53.254
5
IP NETWORK (10.76.54.0)
BASE STATION
61
10.76.54.254
FA
62
6

FIG.2

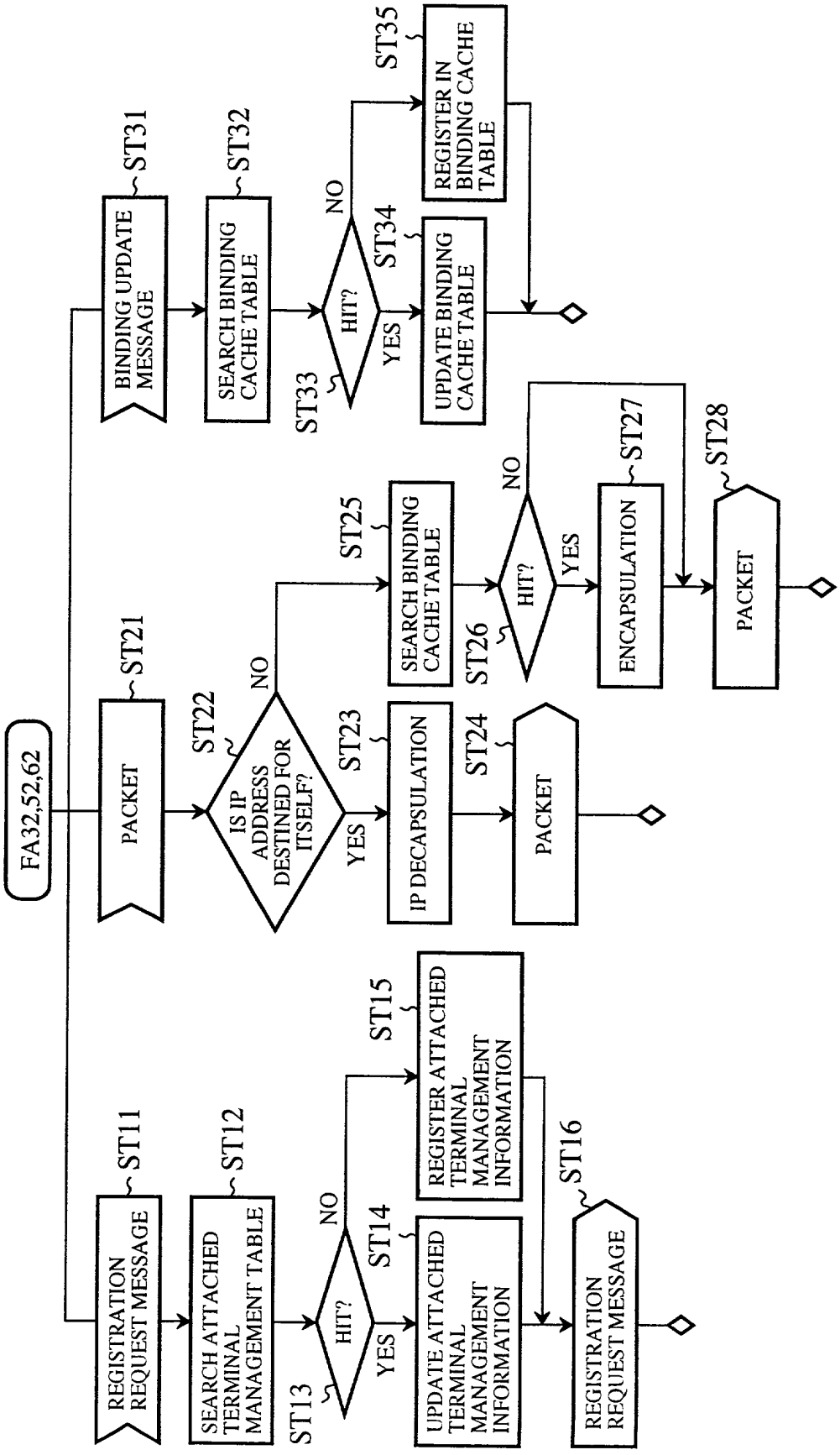
FA32,52,62
PACKET
ST21
IS IP ADDRESS DESTINED FOR ITSELF?
ST22
NO
YES
ST23
IP DECAPSULATION
ST24
PACKET
ST25
SEARCH BINDING CACHE TABLE
ST26
HIT?
NO
YES
ST27
ENCAPSULATION
ST28
PACKET
BINDING UPDATE MESSAGE
ST31
SEARCH BINDING CACHE TABLE
ST32
HIT?
ST33
NO
YES
ST34
UPDATE BINDING CACHE TABLE
ST35
REGISTER IN BINDING CACHE TABLE
REGISTRATION REQUEST MESSAGE
ST11
SEARCH ATTACHED TERMINAL MANAGEMENT TABLE
ST12
HIT?
ST13
NO
YES
ST14
UPDATE ATTACHED TERMINAL MANAGEMENT INFORMATION
ST15
REGISTER ATTACHED TERMINAL MANAGEMENT INFORMATION
ST16
REGISTRATION REQUEST MESSAGE

FIG.3

HOME ADDRESS	HA ADDRESS	LIFETIME (SEC)
10.76.51.100	10.76.51.254	10

FIG.4

HOME ADDRESS	CARE-OF ADDRESS	HA ADDRESS	LIFETIME (SEC)
10.76.51.100	10.76.53.254	10.76.51.254	10

FIG.5

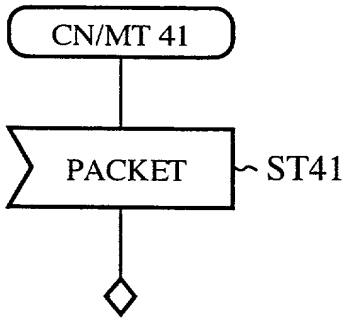

FIG.6

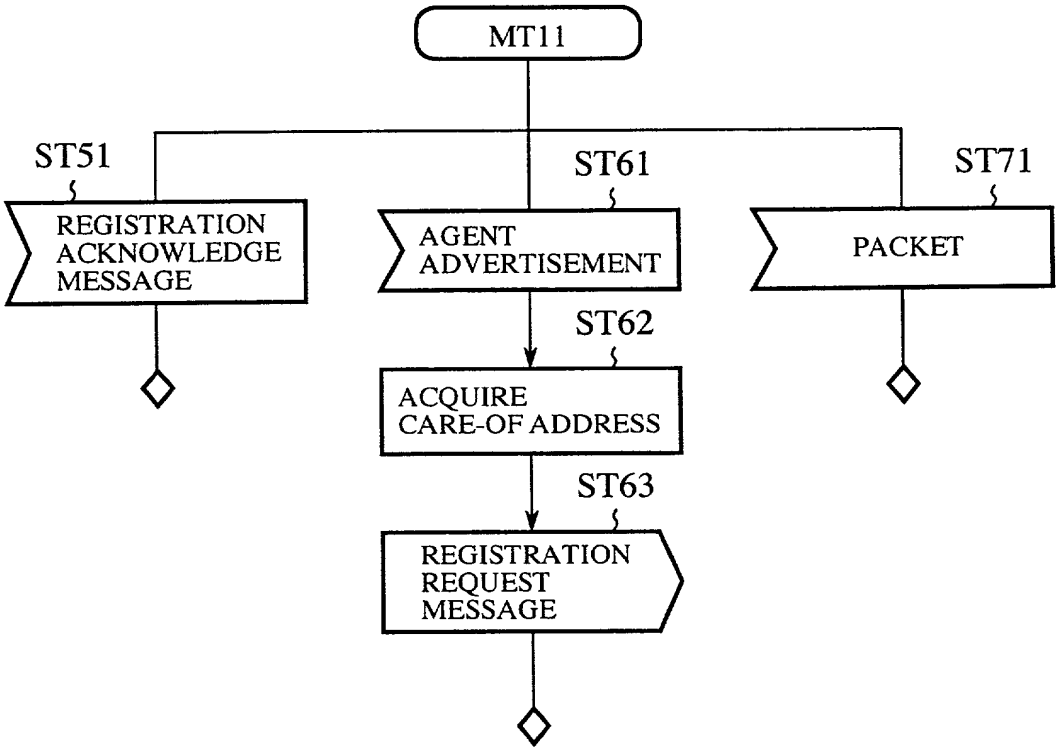

FIG.8

HOME ADDRESS	CARE-OF ADDRESS	LIFETIME (SEC)
10.76.51.100	10.76.52.254	10

FIG.7

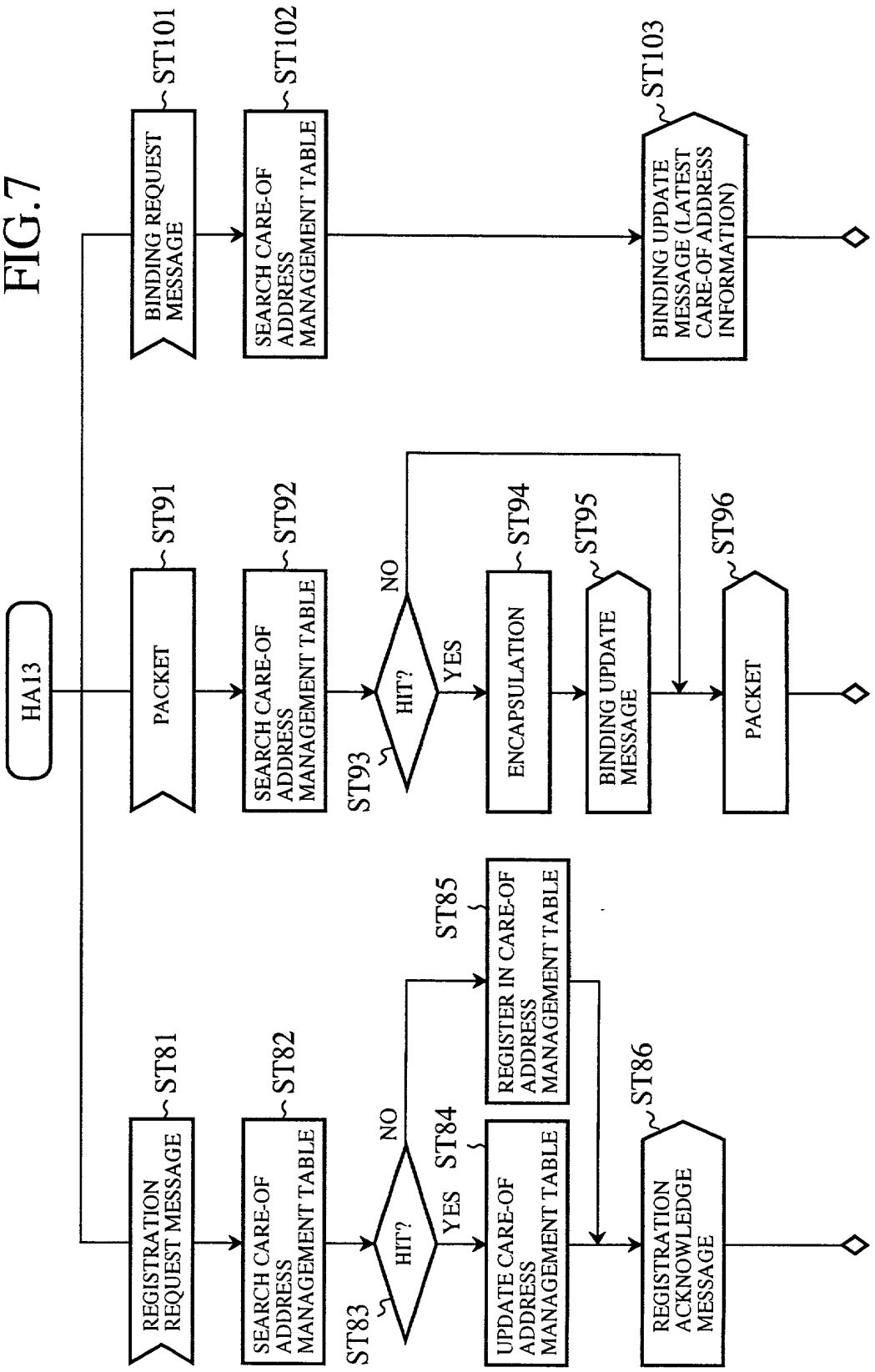
HA13
PACKET
ST91
SEARCH CARE-OF ADDRESS MANAGEMENT TABLE
ST92
HIT?
ST93
NO
YES
ENCAPSULATION
ST94
BINDING UPDATE MESSAGE
ST95
PACKET
ST96
BINDING REQUEST MESSAGE
ST101
SEARCH CARE-OF ADDRESS MANAGEMENT TABLE
ST102
BINDING UPDATE MESSAGE (LATEST CARE-OF ADDRESS INFORMATION)
ST103
REGISTRATION REQUEST MESSAGE
ST81
SEARCH CARE-OF ADDRESS MANAGEMENT TABLE
ST82
HIT?
ST83
NO
YES
ST84
UPDATE CARE-OF ADDRESS MANAGEMENT TABLE
REGISTER IN CARE-OF ADDRESS MANAGEMENT TABLE
ST85
REGISTRATION ACKNOWLEDGE MESSAGE
ST86

FIG.9

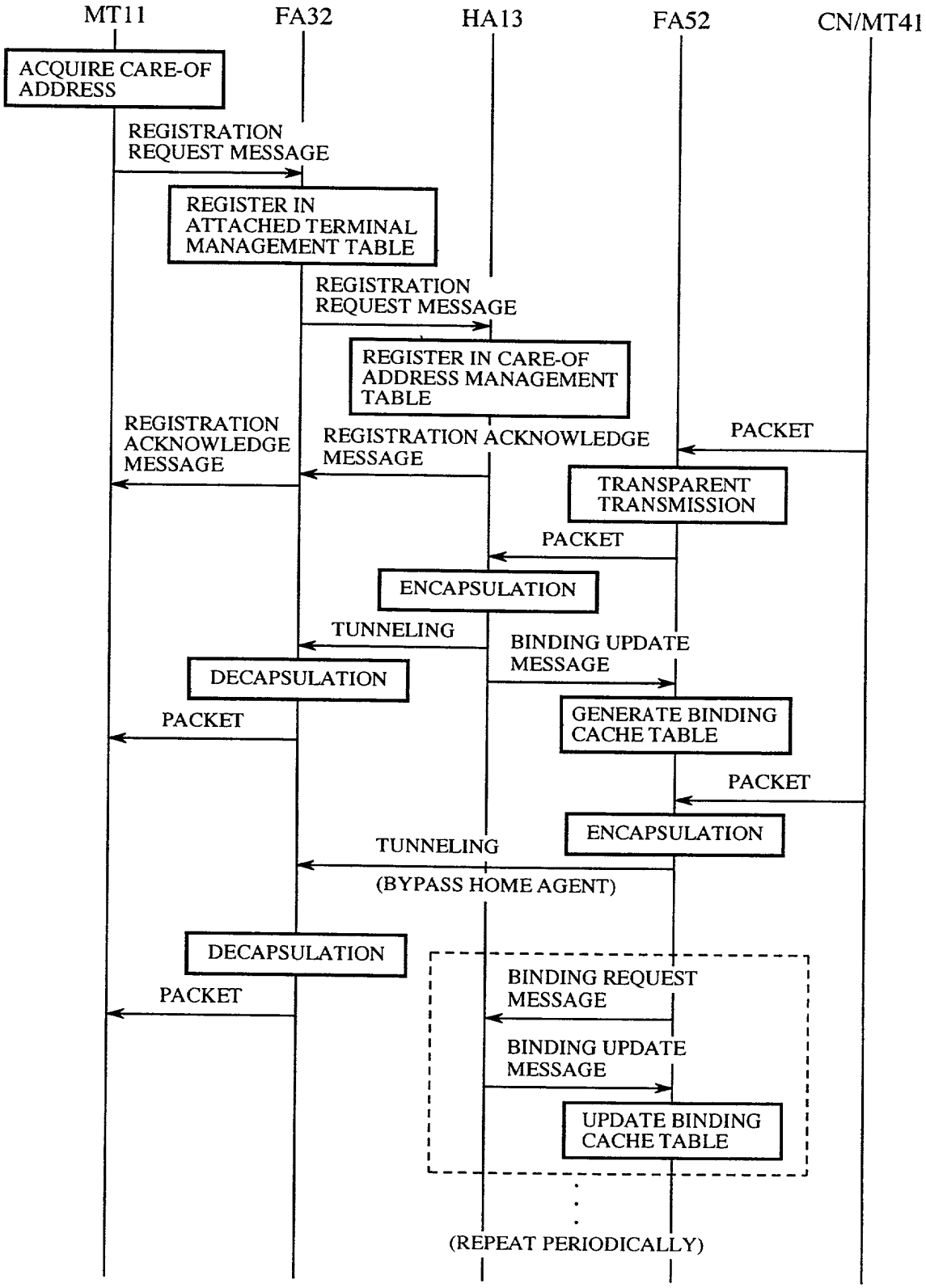
MT11
FA32
HA13
FA52
CN/MT41
ACQUIRE CARE-OF ADDRESS
REGISTRATION REQUEST MESSAGE
REGISTER IN ATTACHED TERMINAL MANAGEMENT TABLE
REGISTRATION REQUEST MESSAGE
REGISTER IN CARE-OF ADDRESS MANAGEMENT TABLE
REGISTRATION ACKNOWLEDGE MESSAGE
REGISTRATION ACKNOWLEDGE MESSAGE
PACKET
TRANSPARENT TRANSMISSION
PACKET
ENCAPSULATION
TUNNELING
BINDING UPDATE MESSAGE
DECAPSULATION
GENERATE BINDING CACHE TABLE
PACKET
PACKET
ENCAPSULATION
TUNNELING
(BYPASS HOME AGENT)
DECAPSULATION
BINDING REQUEST MESSAGE
PACKET
BINDING UPDATE MESSAGE
UPDATE BINDING CACHE TABLE
(REPEAT PERIODICALLY)

FIG.10

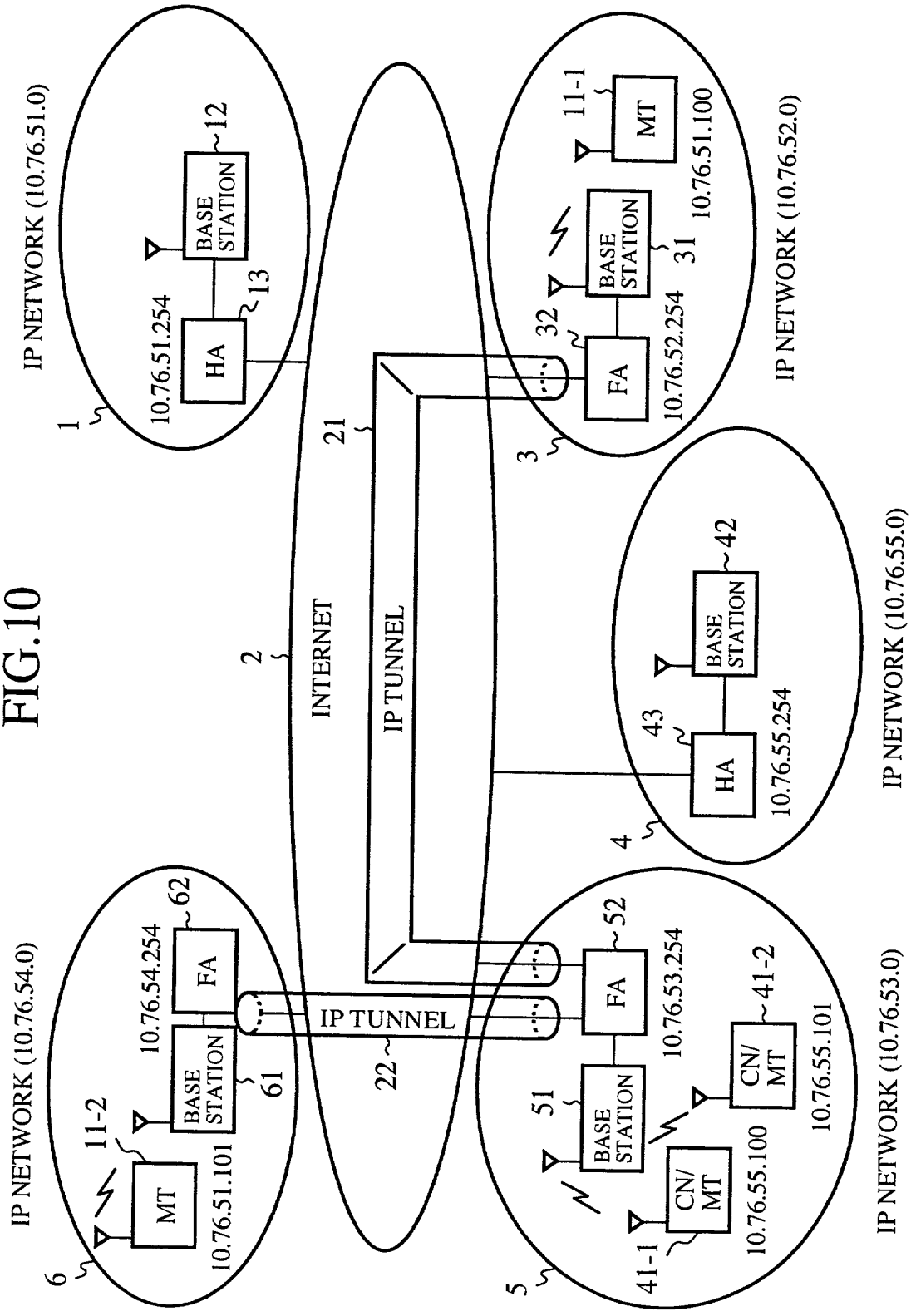
IP NETWORK (10.76.51.0)
1
10.76.51.254
HA
13
BASE STATION
12
INTERNET
2
IP TUNNEL
21
IP TUNNEL
22
IP NETWORK (10.76.52.0)
3
10.76.52.254
FA
32
BASE STATION
31
10.76.51.100
MT
11-1
IP NETWORK (10.76.55.0)
4
10.76.55.254
HA
43
BASE STATION
42
IP NETWORK (10.76.54.0)
6
10.76.51.101
MT
11-2
BASE STATION
61
10.76.54.254
FA
62
IP NETWORK (10.76.53.0)
5
10.76.55.100
CN/MT
41-1
BASE STATION
51
10.76.53.254
FA
52
10.76.55.101
CN/MT
41-2

FIG.11

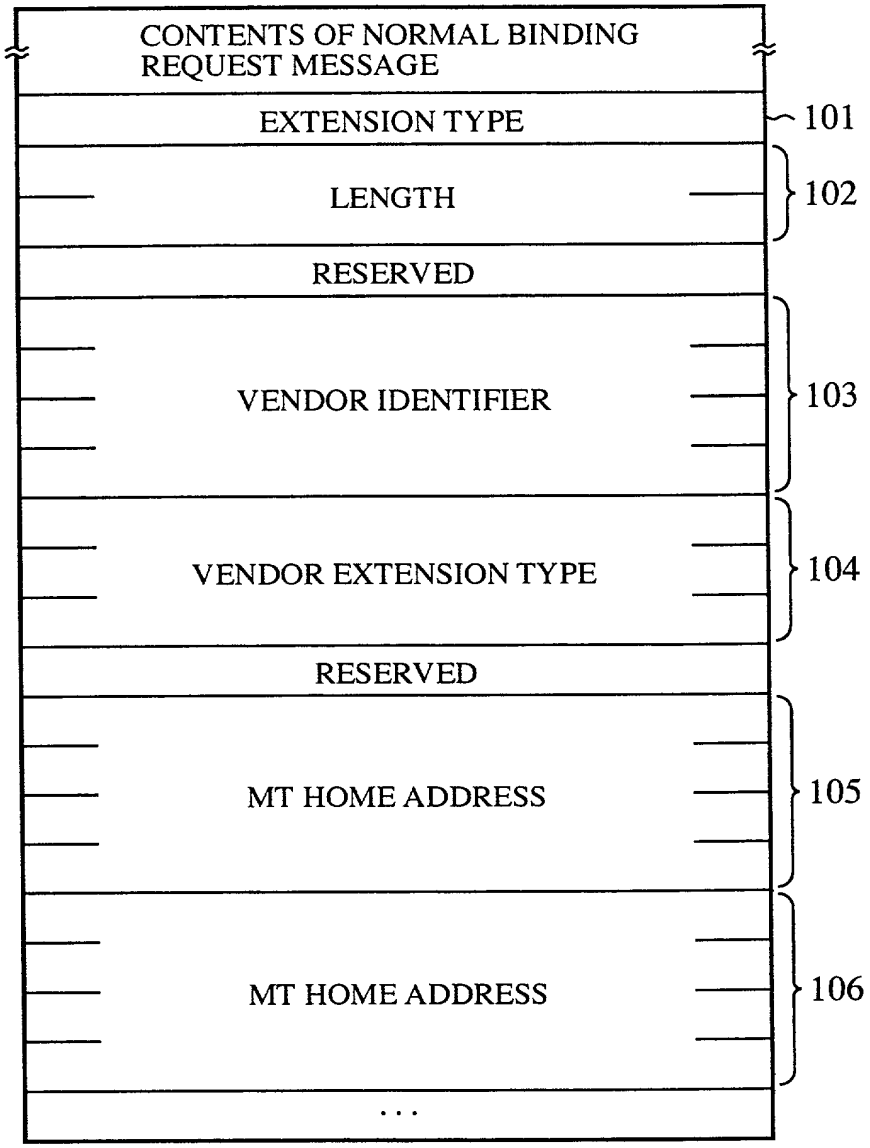

FIG.12

ADDRESS OF HA USED	SUPPORT FOR EXTENSION
10.76.51.254	YES
10.76.55.254	NO
DEFAULT	NO

FIG.13

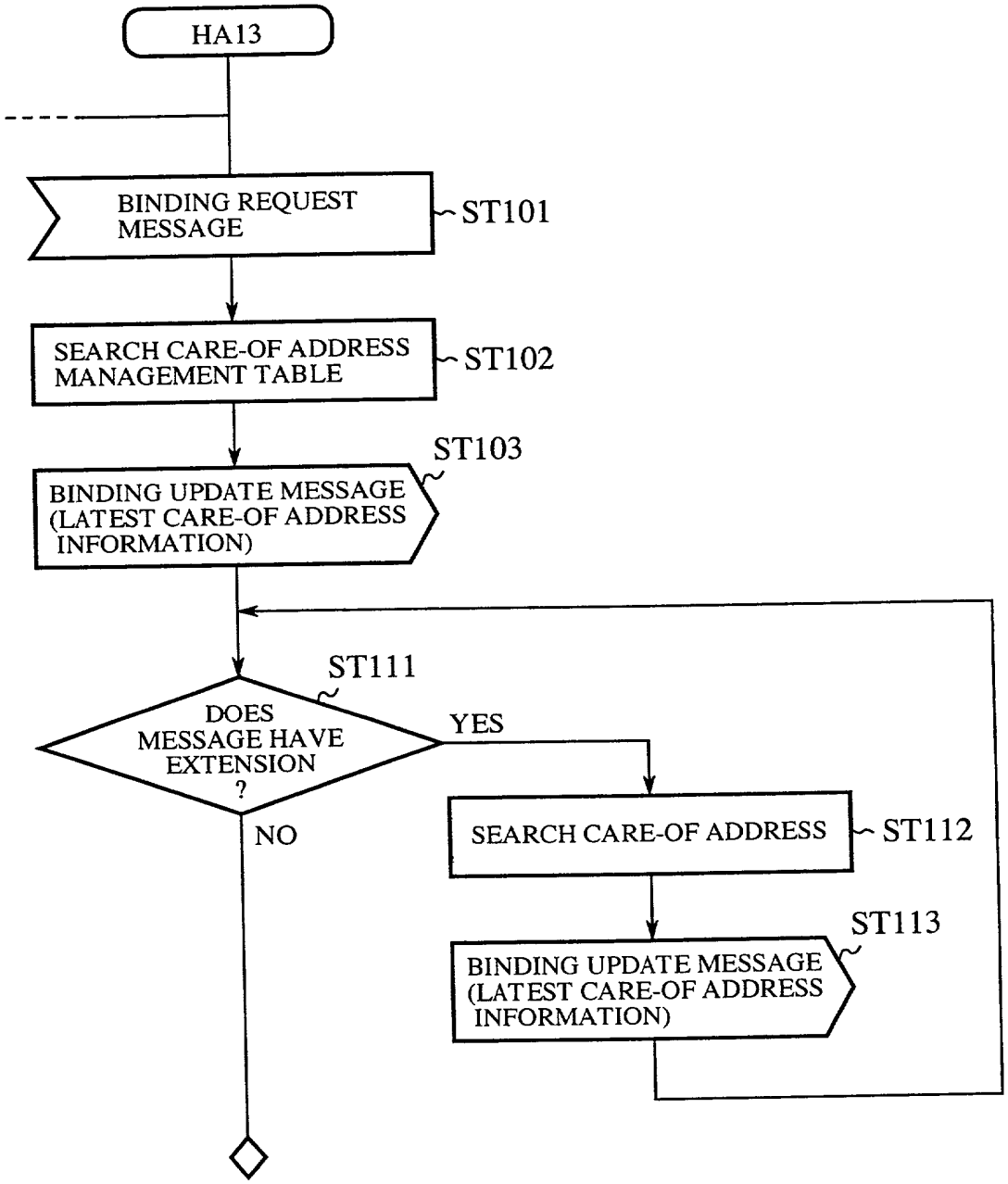
HA13
BINDING REQUEST MESSAGE
ST101
SEARCH CARE-OF ADDRESS MANAGEMENT TABLE
ST102
ST103
BINDING UPDATE MESSAGE (LATEST CARE-OF ADDRESS INFORMATION)
ST111
DOES MESSAGE HAVE EXTENSION ?
YES
NO
SEARCH CARE-OF ADDRESS
ST112
ST113
BINDING UPDATE MESSAGE (LATEST CARE-OF ADDRESS INFORMATION)

FIG.14

ADDRESS OF HA USED	SUBNET MASK	SUPPORT FOR EXTENSION
10.76.00.00	0xFFFF0000	YES
10.76.51.254	0xFFFFFFFF	NO
DEFAULT	0xFFFFFFFF	NO

FIG.15

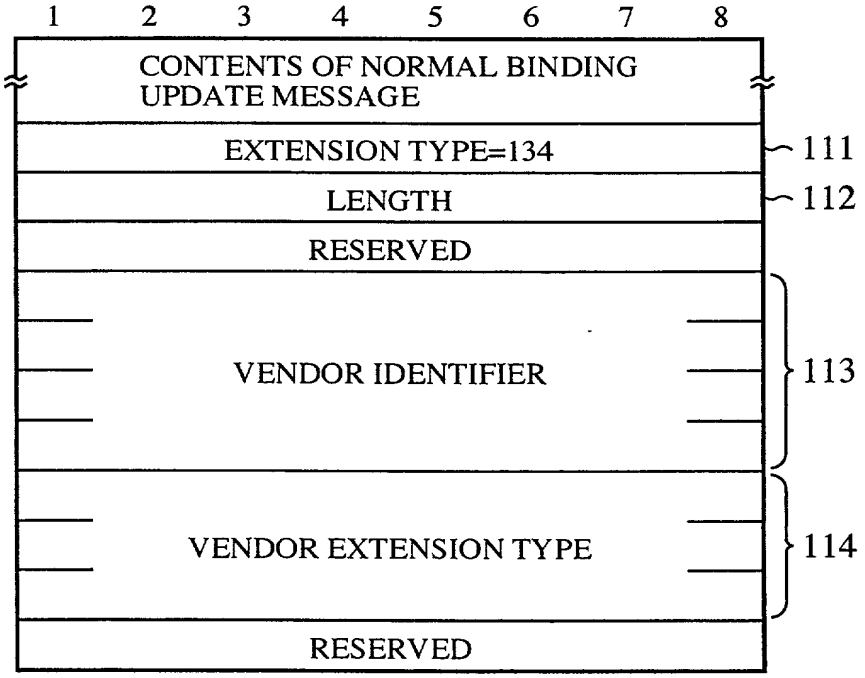

FIG.16

ADDRESS OF HA USED	AVAILABILITY
10.76.51.254	AVAILABLE
10.76.55.254	AVAILABLE
DEFAULT	NOT AVAILABLE

FIG.17

ADDRESS OF HA USED	SUBNET MASK	AVAILABILITY
10.76.00.00	0xFFFF0000	AVAILABLE
10.76.55.254	0xFFFFFFFF	NOT AVAILABLE
DEFAULT	0xFFFFFFFF	NOT AVAILABLE

FIG.18

HOME ADDRESS	ROUTE OPTIMIZATION
10.76.55.100	AVAILABLE
10.76.55.101	NOT AVAILABLE
DEFAULT	NOT AVAILABLE

FIG.19

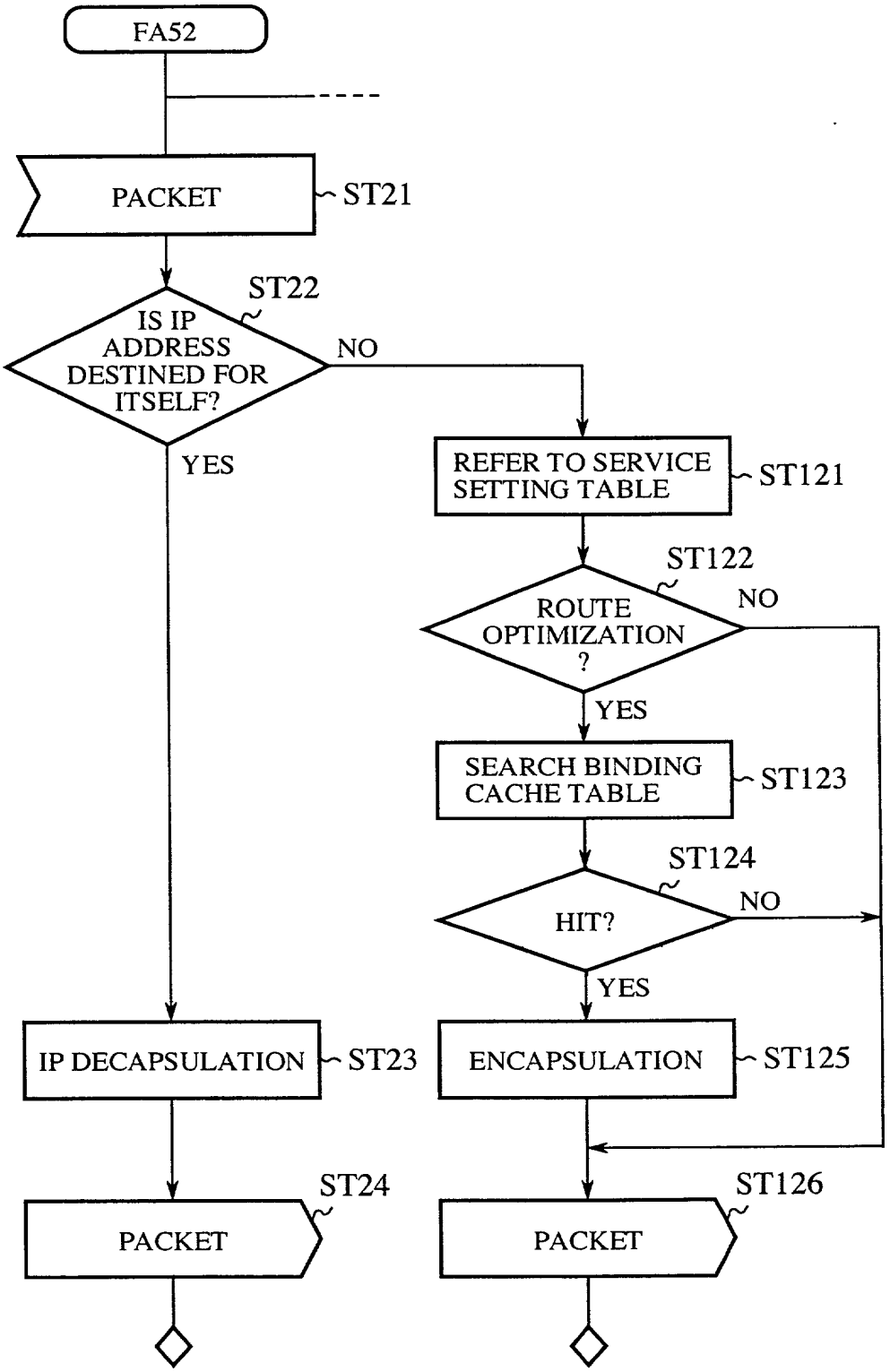
FA52
PACKET
ST21
ST22
IS IP ADDRESS DESTINED FOR ITSELF?
NO
YES
REFER TO SERVICE SETTING TABLE
ST121
ST122
ROUTE OPTIMIZATION ?
NO
YES
SEARCH BINDING CACHE TABLE
ST123
ST124
HIT?
NO
YES
IP DECAPSULATION
ST23
ENCAPSULATION
ST125
ST24
PACKET
ST126
PACKET

FIG.20

HOME ADDRESS	SUBNET MASK	ROUTE OPTIMIZATION
10.76.55.0	0xFFFFFF00	AVAILABLE
10.76.55.101	0xFFFFFFFF	NOT AVAILABLE
DEFAULT	0xFFFFFFFF	NOT AVAILABLE

FIG.21

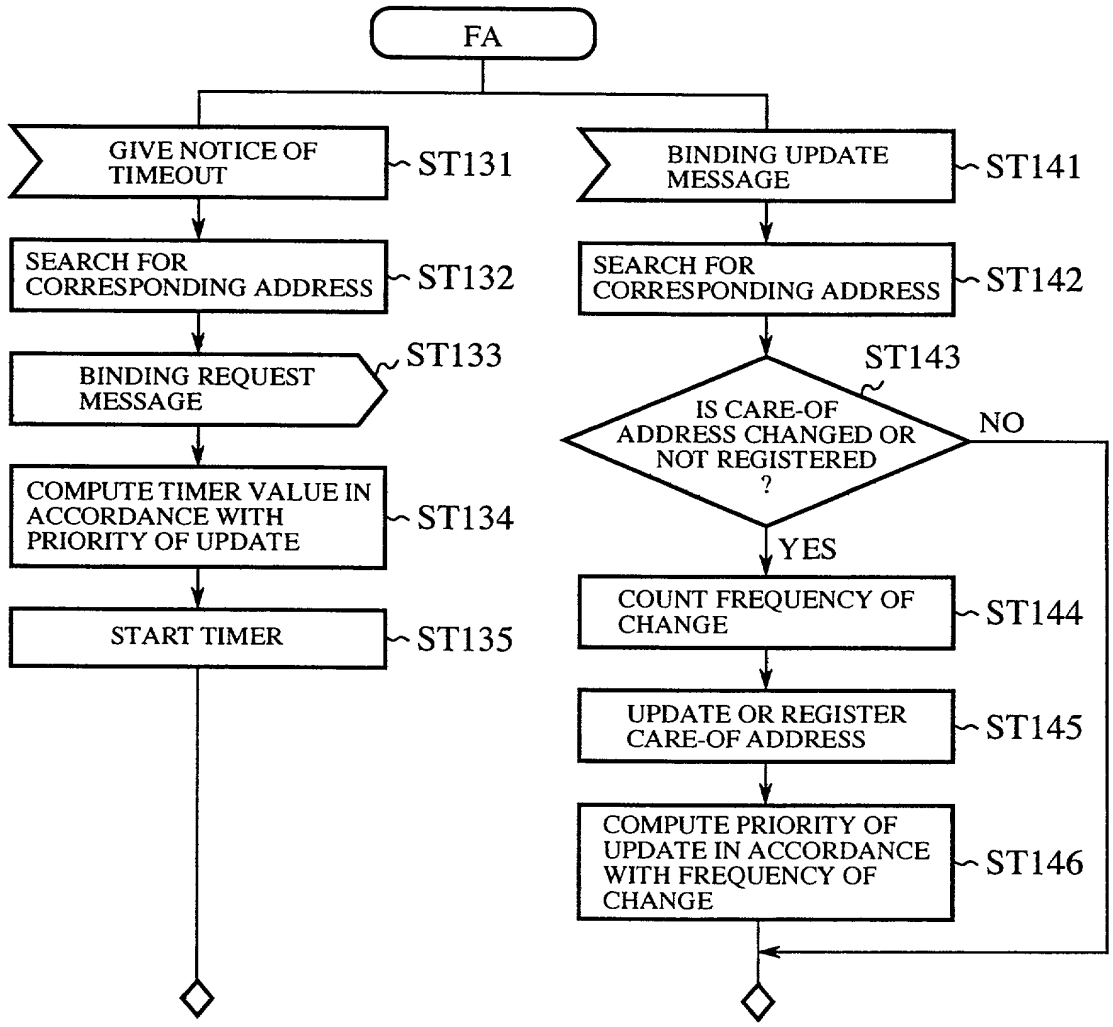

FIG.22

HOME ADDRESS	CARE-OF ADDRESS	LIFETIME	PRIORITY OF UPDATE	FREQUENCY OF CHANGE OF CARE-OF ADDRESS
10.76.51.100	10.76.52.254	10	5	3
10.76.51.101	10.76.54.254	10	1	10

FIG.23

HOME ADDRESS	INITIAL VALUE OF PRIORITY OF UPDATE
10.76.51.100	5
10.76.51.101	3
DEFAULT	—

FIG.24

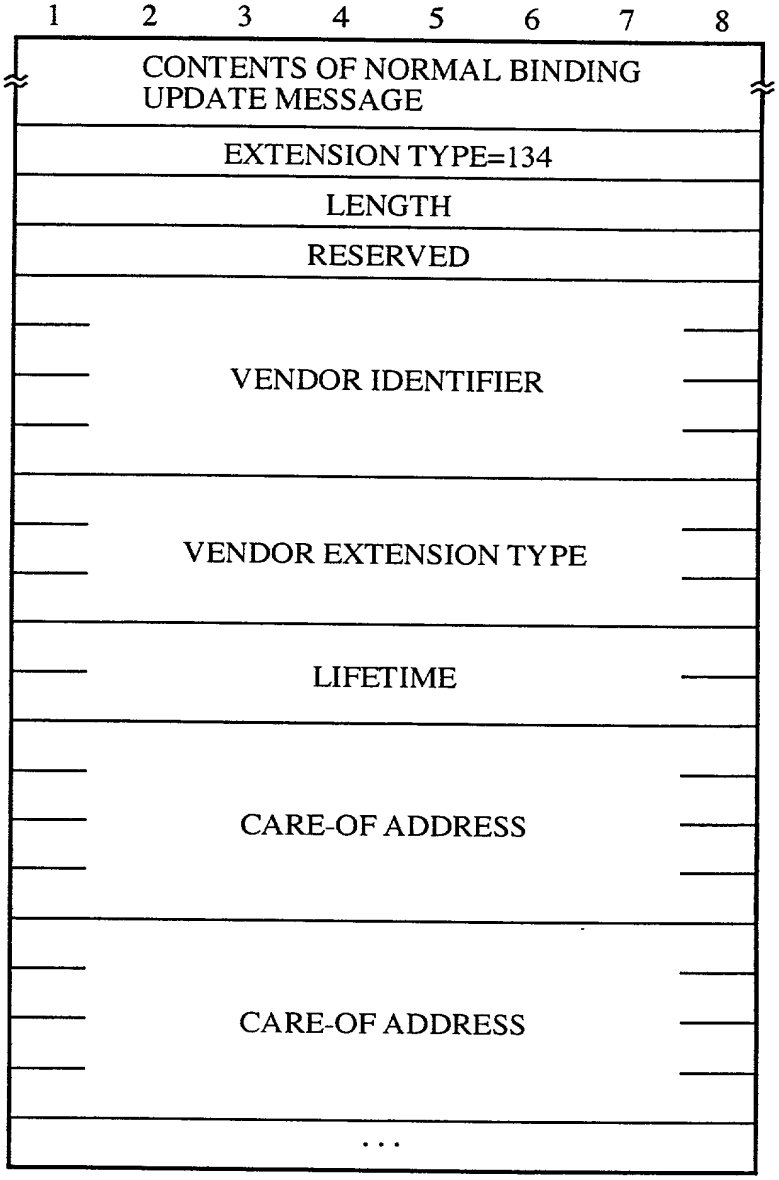
1
2
3
4
5
6
7
8
CONTENTS OF NORMAL BINDING UPDATE MESSAGE
EXTENSION TYPE=134
LENGTH
RESERVED
VENDOR IDENTIFIER
VENDOR EXTENSION TYPE
LIFETIME
CARE-OF ADDRESS
CARE-OF ADDRESS
...

FIG.25

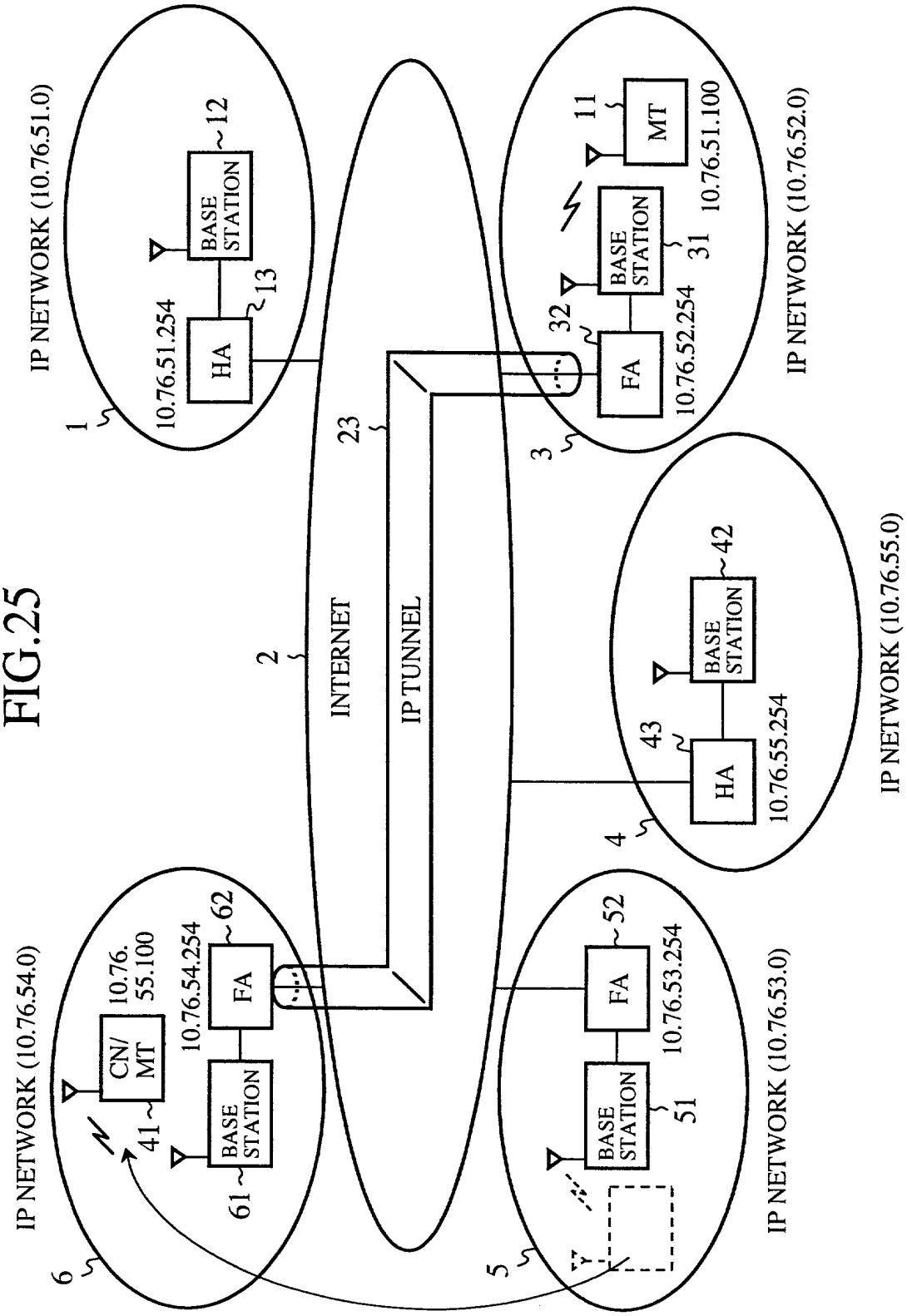
IP NETWORK (10.76.51.0)
1
10.76.51.254
HA
13
BASE STATION
12
IP NETWORK (10.76.52.0)
3
10.76.52.254
FA
32
BASE STATION
31
10.76.51.100
MT
11
IP NETWORK (10.76.55.0)
4
10.76.55.254
HA
43
BASE STATION
42
IP NETWORK (10.76.53.0)
5
10.76.53.254
FA
52
BASE STATION
51
IP NETWORK (10.76.54.0)
6
10.76.54.254
FA
62
BASE STATION
61
10.76. 55.100
CN/ MT
41
INTERNET
2
IP TUNNEL
23

FIG.26

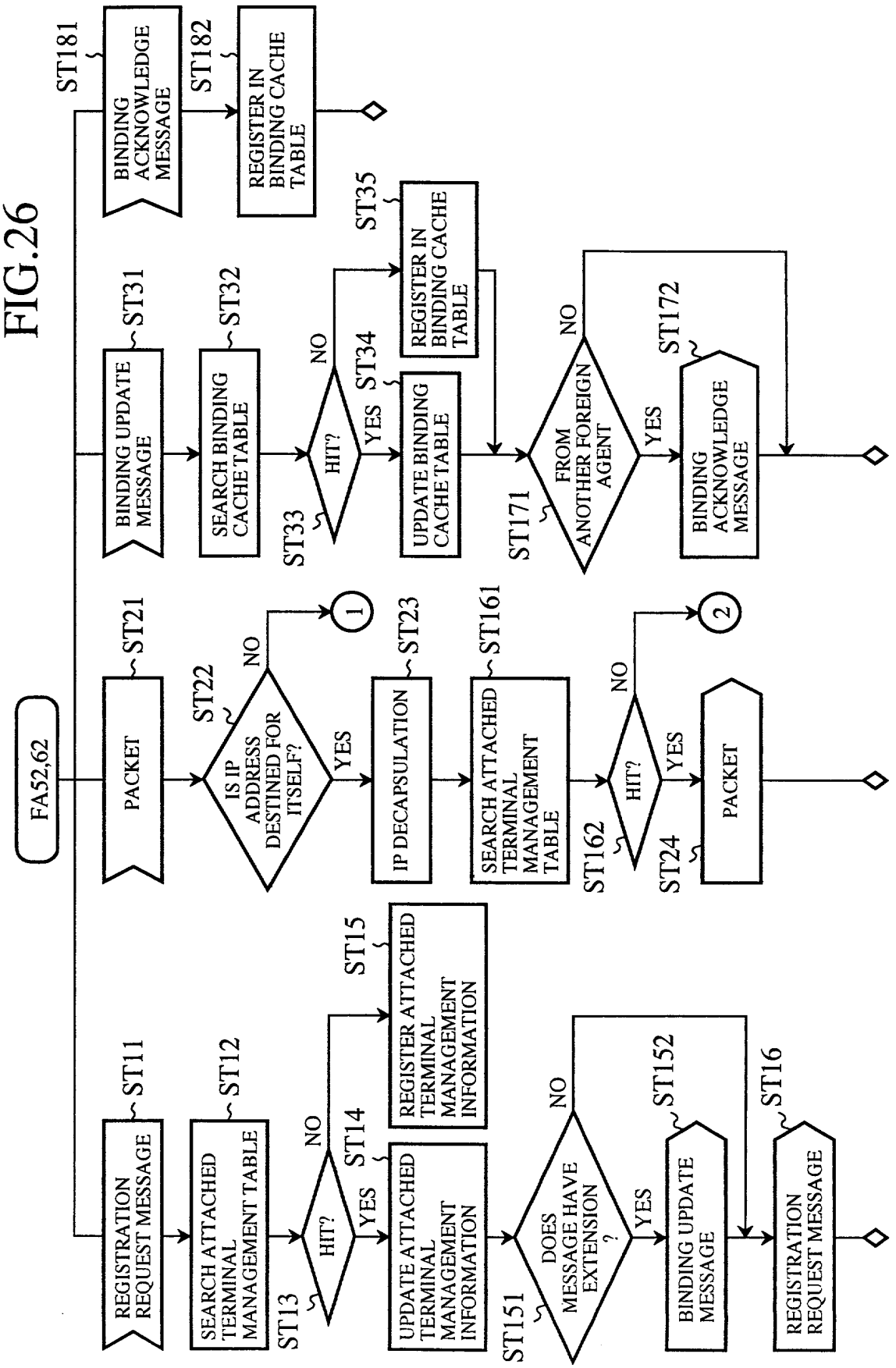
FA52,62
REGISTRATION REQUEST MESSAGE
ST11
SEARCH ATTACHED TERMINAL MANAGEMENT TABLE
ST12
HIT?
ST13
NO
YES
UPDATE ATTACHED TERMINAL MANAGEMENT INFORMATION
ST14
REGISTER ATTACHED TERMINAL MANAGEMENT INFORMATION
ST15
DOES MESSAGE HAVE EXTENSION ?
ST151
NO
YES
BINDING UPDATE MESSAGE
ST152
REGISTRATION REQUEST MESSAGE
ST16
PACKET
ST21
IS IP ADDRESS DESTINED FOR ITSELF?
ST22
NO
YES
1
IP DECAPSULATION
ST23
SEARCH ATTACHED TERMINAL MANAGEMENT TABLE
ST161
HIT?
ST162
NO
YES
2
PACKET
ST24
BINDING UPDATE MESSAGE
ST31
SEARCH BINDING CACHE TABLE
ST32
HIT?
ST33
NO
YES
ST34
UPDATE BINDING CACHE TABLE
REGISTER IN BINDING CACHE TABLE
ST35
FROM ANOTHER FOREIGN AGENT
ST171
NO
YES
BINDING ACKNOWLEDGE MESSAGE
ST172
BINDING ACKNOWLEDGE MESSAGE
ST181
REGISTER IN BINDING CACHE TABLE
ST182

FIG.27

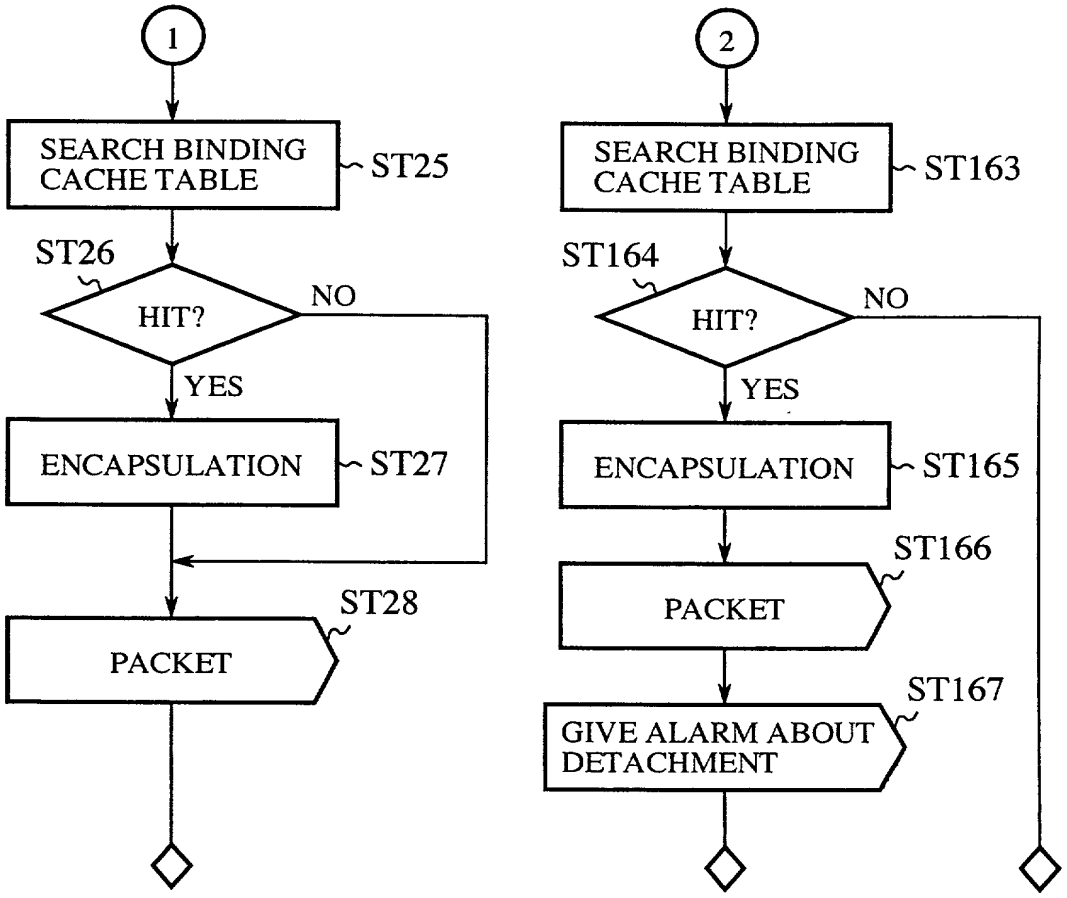
1
SEARCH BINDING CACHE TABLE
ST25
ST26
HIT?
NO
YES
ENCAPSULATION
ST27
ST28
PACKET
2
SEARCH BINDING CACHE TABLE
ST163
ST164
HIT?
NO
YES
ENCAPSULATION
ST165
ST166
PACKET
ST167
GIVE ALARM ABOUT DETACHMENT

FIG.28

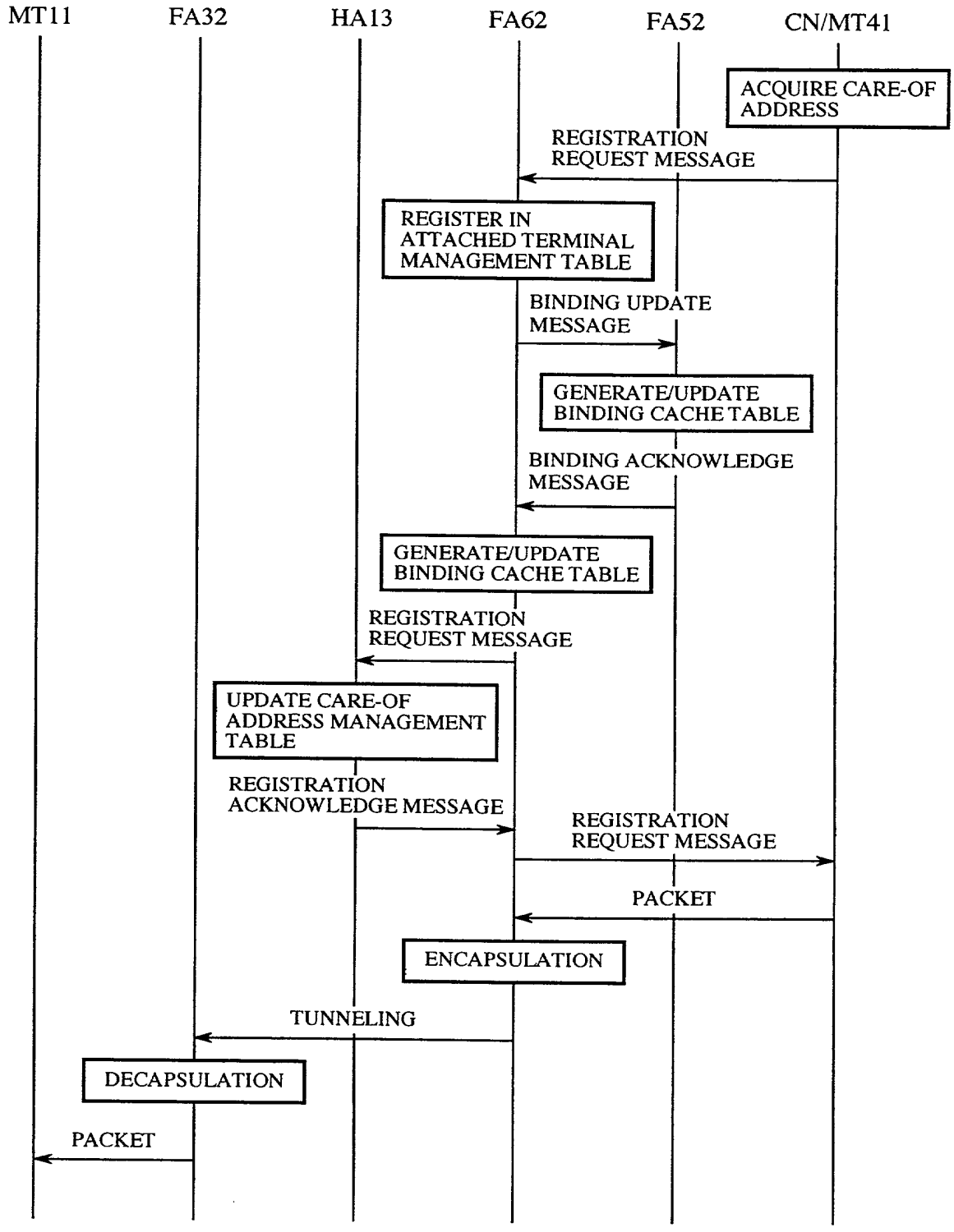
MT11
FA32
HA13
FA62
FA52
CN/MT41
ACQUIRE CARE-OF ADDRESS
REGISTRATION REQUEST MESSAGE
REGISTER IN ATTACHED TERMINAL MANAGEMENT TABLE
BINDING UPDATE MESSAGE
GENERATE/UPDATE BINDING CACHE TABLE
BINDING ACKNOWLEDGE MESSAGE
GENERATE/UPDATE BINDING CACHE TABLE
REGISTRATION REQUEST MESSAGE
UPDATE CARE-OF ADDRESS MANAGEMENT TABLE
REGISTRATION ACKNOWLEDGE MESSAGE
REGISTRATION REQUEST MESSAGE
PACKET
ENCAPSULATION
TUNNELING
DECAPSULATION
PACKET

FIG.29

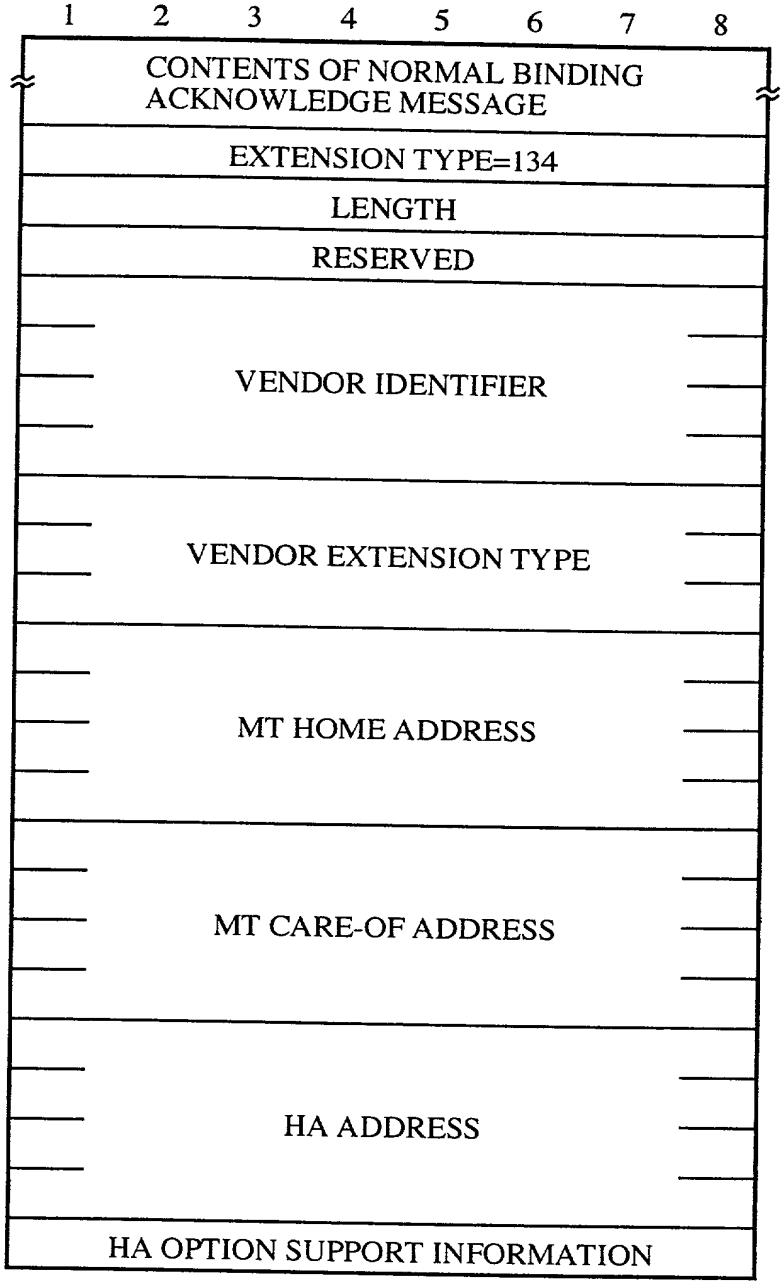
1 2 3 4 5 6 7 8
CONTENTS OF NORMAL BINDING ACKNOWLEDGE MESSAGE
EXTENSION TYPE=134
LENGTH
RESERVED
VENDOR IDENTIFIER
VENDOR EXTENSION TYPE
MT HOME ADDRESS
MT CARE-OF ADDRESS
HA ADDRESS
HA OPTION SUPPORT INFORMATION

FIG.30 (PRIOR ART)

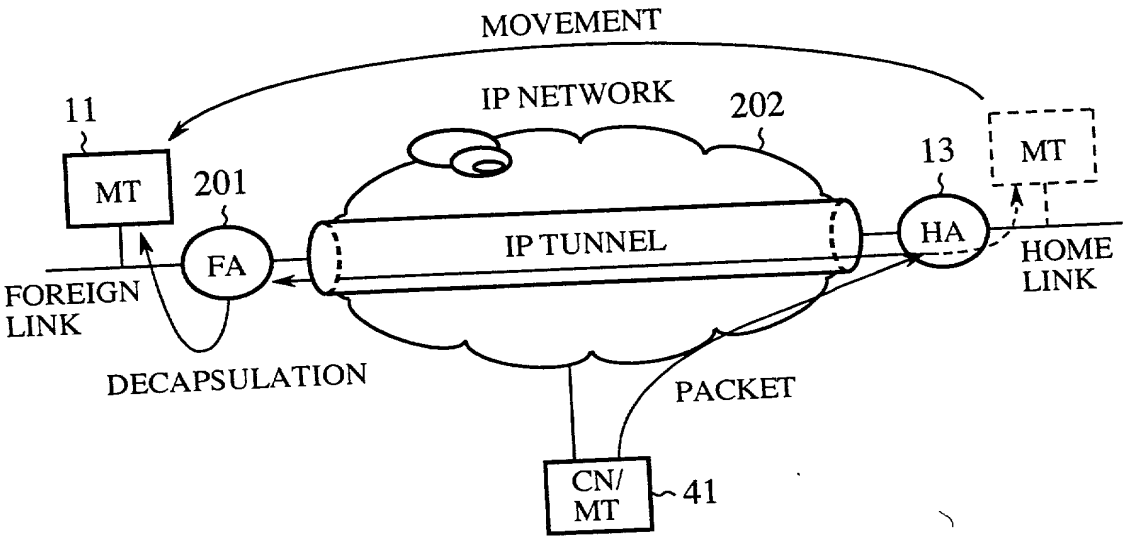
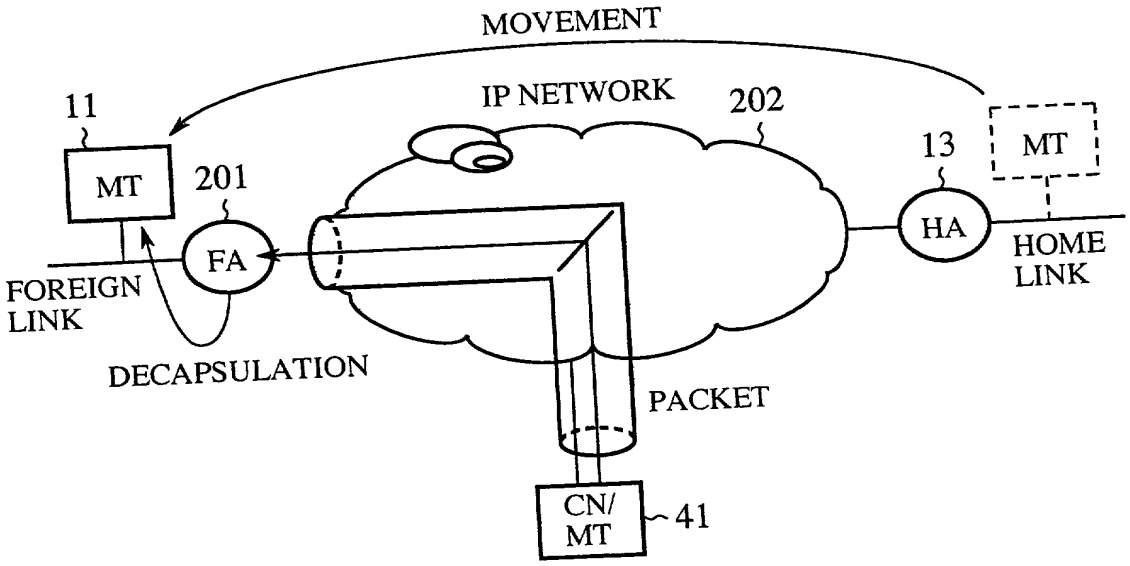
FIG.31 (PRIOR ART)